Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF THE CLAIMS

1.-47. Canceled

48. (Currently amended) The method of ~~claim 1~~ claim 78 wherein the multivalent ligand further comprises one or more binding recognition elements, one or more functional elements or both.

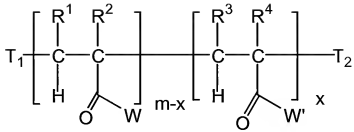
49.-52. Canceled

53. (Currently amended) The method of ~~claim 1~~ claim 78 wherein one or more of the signal recognition elements is selected from the group consisting of an amino acid, a peptide, a protein, a derivatized peptide, a monosaccharide, a disaccharide, a polysaccharide, a nucleic acid, a cell nutrient, an epitope, an antigenic determinant, a small drug-like compound, a hapten, an antibody or antibody fragment or a cell surface receptor.

54.-77. Canceled

78. (Currently amended) ~~The method of claim 1~~ A method for inducing a biological response in a biological system comprising one or more receptors which comprises the step of introducing into the biological system a multivalent ligand which comprises a plurality of signal recognition elements bonded to a molecular scaffold wherein the signal recognition elements are recognized by at least one of the receptors wherein the ~~multivalent ligand~~ multivalent ligands are polymers having the

formula:



where:

m and x are integers and m is the number of monomers in the polymer;

W and W' are groups independently selected from –L-BRE, -L-FE, -L-SRE, a hydrogen or an organic group;

BRE is a binding recognition element;

FE is a functional element;

SRE is a signal recognition element;

L is an optional linker group;

$T_{1\text{-}2}$ are polymer end groups which can include, among others, reactive or non-reactive groups and latent reactive groups; and

$R^{1\text{-}4}$ can be the same or different groups and are most generally, independently of one another, hydrogen or any organic groups and where the polymeric ligand contains at least one W or W' that is a ~~BRE~~ binding recognition element or ~~an SRE~~ a signal recognition element ~~group~~.

79. (Original) The method of claim 78 wherein SRE is a peptide or a derivatized peptide, a chemoattractant, a small drug-like compound, an antigen, an epitope, an antibody or antibody fragment.

80.-81. Canceled

82. (Withdrawn) The method of claims 78 wherein at least one of SRE is an epitope or antigen and at least one other SRE binds to a cell surface receptor of an immune cell.

83. (Withdrawn) The method of claim 78 wherein at least one FE group is a detectable label or a reporter group.

84. (Withdrawn) The method of claim 78 wherein an FE in the at least one -L^2- FE group in the ligand is an enzyme.

85.-87. Canceled

88. (Original) The method of claim 78 wherein one or more of the BRE, SRE or both are Fab or Fab'.

89. (Original) A method for enhancing aggregation of biological particles which comprises the steps of:
providing a multivalent ligand complex which comprises a plurality of recognition elements which each induce aggregation of one or more of the biological particles and contacting the biological particles with the complex.

90. (Original) The method of claim 89 wherein the recognition elements are antibodies or lectins.

91. (Original) The method of claim 89 wherein the biological particles are cells, viruses or virions.

92. (Withdrawn) The method of claim 89 wherein the multivalent ligand is a ROMP-derived ligand.

93. (Currently amended) The method of claim 89 wherein the multivalent ligand is an ~~ATRP~~ atom-transfer radical polymerization polymer.

94. Canceled

95.-98. Canceled

99. (Currently amended) The method of ~~claim 95~~ claim 100 wherein one or more of the signal recognition elements are selected from lectins, proteins, nucleic acids, small drug-like compounds, antigens, epitopes, antibodies, antibody fragments, saccharides or mixtures thereof.

100. (Currently amended) ~~The method of claim 95~~ A method for inducing or enhancing induction of a cellular response which comprises the steps of: forming a multivalent ligand which comprises a plurality of signal recognition elements which individually bind to the cell and induce the cellular response and contacting the cells with the multivalent ligand in an amount sufficient to enhance the cellular response, wherein the multivalent ligand is a ROMP-derived polymer or an ~~ATRP~~ atom-transfer radical polymerization polymer.

101. (Original) A method for generating an assembly of biological macromolecules or particles which comprises the steps of:
    (a) providing a multivalent ligand which comprises a molecular scaffold to which a plurality of binding recognition elements are attached which, in turn, bind to one or more biological macromolecules or biological particles wherein the number, density and spacing of recognition elements bonded to the molecular scaffold are controlled; and
    (b) contacting the multivalent ligand with biological macromolecules or particles such that the recognition elements of the ligand bind to two or more biological macromolecules or biological particles.

102. (Original) The method of claim 101 wherein the biological macromolecules are peptides or proteins.

103. (Original) The method of claim 101 wherein the biological particles are cells, viruses or virions.

104. (Withdrawn) The method of claim 101 wherein the multivalent ligand further comprises one or more FE bonded to the molecular scaffold.

105. (Withdrawn) The method of claim 101 wherein the FE is a group that can be attached to a solid support.

106. (Original) The method of claim 101 wherein the members of the assembly of biological macromolecules are attached to a solid support.

107. Canceled

108. (Currently amended) The method of claim 101 wherein the ~~BRE~~ binding recognition elements are selected from antibodies, antibody fragments, antigens, or epitopes.

109. (Original) The method of claim 101 wherein the molecular scaffold is a polymer.

110.-148. Cancelled

149. (Currently amended) ~~The method of claim 1~~ A method for inducing a biological response in a biological system comprising one or more receptors which comprises the step of introducing into the biological system a multivalent ligand which comprises a plurality of signal recognition elements bonded to a molecular scaffold wherein the signal recognition elements are recognized by at least one of the receptors

wherein the biological response is immune adherence and the biological system comprises erythrocytes and wherein the polymer is an ATRP polymer or a ROMP polymer.

150. (Previously Presented) The method of claim 149 wherein the receptor is a receptor on the erythrocytes.

151. (Previously Presented) The method of claim 150 wherein the receptor is CR1.

152. (Currently amended) The method of claim 150 wherein the signal recognition element is an antibody ~~of~~ or fragment thereof which is selective for the receptor on the erythrocytes.

153. (Previously Presented) The method of claim 152 wherein the receptor is CR1.

154. (Previously Presented) The method of claim 153 wherein the signal recognition element is a Fab' fragment.

155. (Previously Presented) The method of claim 154 wherein the multivalent ligand further comprises an antibody or fragment thereof which selectively binds to the pathogen.

156. (Previously Presented) The method of claim 155 wherein the antibody or fragment thereof is a Fab' fragment.

157. (Previously Presented) The method of claim 101 wherein the biological macromolecules or particles are antigens or pathogens.

158. (Previously Presented) The method of claim 157 wherein the biological particles are pathogens.

159. (Previously Presented) The method of claim 158 wherein the pathogens are selected from the group of fungal, protozoan, bacterial or viral pathogens.

160. (Previously Presented) The method of claim 150 wherein the pathogen is a bacterial pathogen.

161. (Previously Presented) The method of claim 101 wherein the multivalent ligand comprises binding recognition elements selectively bind to a pathogen.

162. (Previously Presented) The method of claim 161 wherein the multivalent ligand further comprises signal recognition elements which bind to a receptor on erythrocytes.

163. (Previously Presented) The method of claim 162 wherein the signal recognition elements are antibodies or fragments thereof.

164. (Previously Presented) The method of claim 162 wherein the signal recognition elements are Fab, Fab', scFv and scFv-hybrids.

165. (Previously Presented) The method of claim 164 wherein the signal recognition elements are Fab' fragments.

166. Cancelled

167. (Previously Presented) The method of claim 166 wherein the polymer is an ATRP polymer.

168. (Previously Presented) The method of claim 157 wherein the polymer is selected from a polyacrylamide, a polyester, a polyether, a polymethacrylate, a polyol, and a polyamino acid.

169. (Previously Presented) The method of claim 157 wherein the polymer is selected from a polyacrylamide, a polyester, a polyether, a polymethacrylate, and a polyol.

170. (Previously Presented) The method of claim 169 wherein the polymer is a polymethacrylate.

171. (Previously Presented) The method of claim 170 wherein the polymer comprises a signal recognition element that binds to a receptor on an erythrocyte.

172. (Previously Presented) The method of claim 171 wherein the polymer further comprises a binding recognition element that binds selectively to a pathogen or an antigen.

173. (Previously Presented) The method of claim 172 wherein the signal recognition element and the binding recognition element are both antibody fragments.

174. (Previously Presented) The method of claim 173 wherein the antibody fragments are Fab' fragments.

175. (Previously Presented) The method of claim 174 wherein the binding recognition element binds to a selected pathogen.

176. (Previously Presented) The method of claim 175 wherein the pathogen is a fungal, protozoan, bacterial or viral pathogen.

177. (Previously Presented) The method of claim 176 wherein the pathogen is a bacterial pathogen.